

STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petitions of  
Alameda County Flood Control and  
Water Conservation District, William  
Jamieson, Mr. and Mrs. Warren Harding  
and Mrs. Kardinal for Review of  
Order 73-9 of the California Regional  
Water Quality Control Board, San  
Francisco Bay Region

Order No. WQ 73-23

BY THE BOARD

Alameda County Flood Control and Water Conservation District, William Jamieson, Mr. and Mrs. Warren Harding and Mrs. Kardinal (Petitioners), have submitted petitions to the State Water Resources Control Board (State Board), requesting review of Order No. 73-9 of the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Board), which sets discharge requirements for a Class II-2 waste disposal site suitable to receive Group 2 and Group 3 waste as requested by Kaiser Sand and Gravel Division of Kaiser Industries, Inc. (Kaiser).

I. Background

Kaiser has operated a sand and gravel quarry at the Radum site near Pleasanton for over 40 years. The operation has been under quarry permits issued by the County of Alameda. One of the conditions for continuing operation is that the company should develop a reclamation plan for the quarries after the quarrying operation has ended.

Kaiser proposes to reclaim its quarries by sanitary landfill and on October 22, 1971, filed with the Regional Board a report of

waste discharge for reclamation of existing and future depleted sand and gravel pits at the Radum site. The original report has been supplemented by several addenda and special reports, the last dated October 24, 1972, which defines a proposal for a solid waste disposal site for Groups 2 and 3 wastes.

The Regional Board, after several hearings, adopted waste discharge requirements by its Order 73-9 on February 27, 1973. The order included a finding that the disposal site meets the requirements of Title 23, California Administrative Code, for classification as a Class II-2 site suitable to receive Group 2 and Group 3 wastes.

## II. Site Characteristics

The proposed solid waste disposal site is in Alameda County, approximately two miles northeast of the center of the City of Pleasanton, and just outside the northeastern city limit.

The proposed site covers a gross area of 775 acres, of which 444 acres are to be used for sanitary landfill accepting Group 2 and Group 3 solid wastes. The total capacity of the site is about 75 million cubic yards; thus, at the rate of 2,900 tons of refuse per day, the site would be useful for upwards of 50 years.

### A. The Groundwater Basin

The site is in a groundwater recharge zone and extends below the top of the existing and predicted future zone of saturation. The underlying groundwater basin provides the water supply for two large community water systems -- the City of Pleasanton and Valley Community Services District

via the Alameda County Flood Control and Water Conservation District, Zone 7 system. It presently supplies about 50,000 people in the City of Pleasanton and the Dublin Area of the Valley Community Services District.

Wells for these systems are located within one mile of the proposed disposal site and within the same groundwater sub-basin. In addition, there are a number of private domestic water wells located within the same sub-basin and in close proximity of the site. Groundwater from the basin is also used for irrigation purposes. Groundwater analyses from nearby wells indicate that a mixture of upper and lower aquifers has a total dissolved solids content of 500 mg/l. Groundwater in the lower aquifers in this area has less than 400 mg/l total dissolved solids.

Alameda County Flood Control and Water Conservation District is recharging the groundwater in the subject basin with South Bay Aqueduct water through the Los Positas turnout at Altamont, thence to the recharge pit located near the northeast corner of the proposed project, and also into Arroyo Mocho above the Santa Rita wells. The Arroyo Mocho borders the project on two sides. The total groundwater storage capacity of this basin is 670,000 acre-feet. The groundwater table in areas immediately adjacent to the site is presently at a depth of from 75 to 90 feet. It is anticipated that groundwater levels will rise due to present groundwater basin recharge. However, the rate of rise and the ultimate level of water in the basin are difficult to anticipate. Groundwater levels were within 40 feet of the ground surface in 1940 and could rise to that or higher levels in the future.

## B. Seismic Characteristics

As is characteristic of the entire San Francisco Bay area, the project site lies within a highly active seismic region. The three major known active faults in the Bay area are: the San Andreas fault, located 30 miles west of the Kaiser-Radum site; the Hayward fault, located 10 miles west of the site; and the Calaveras fault, located three miles west of the site.

Two other faults in the vicinity of the site are suspected as being active faults. One of these is the Riggs Canyon-Greenville fault (located nine miles northeast of the site); the other is the Pleasanton fault (located one mile west of the site), along which creep movements have been reported by the U. S. Geological Survey.

There is no evidence of any fault or fault traces traversing the project site.

## III. The Proposed Project

In order to prevent groundwater degradation or pollution, Kaiser is proposing to build clay barriers for prevention of lateral and vertical hydraulic continuity with surrounding groundwaters and is proposing site management which will provide for:

- (a) An inward hydraulic gradient during the active life of the landfill;
- (b) Ultimate collection, withdrawal and treatment of leachates;
- (c) Venting of gases generated within the landfill;

- (d) Recirculation of leachate to accelerate stabilization of the fill material.

The refuse material brought to the site is to be placed in a series of adjacent cells averaging about 20 acres in size. Kaiser proposes site preparation which will include removal of all sand and gravel to expose the underlying natural clay, installation of clay seal where required, construction of clay barriers against the faces of the pit walls, and construction of underdrainage and sumps for the collection and removal of leachate. An inward hydrostatic gradient would be maintained by removal of leachate and any water entering the cells. According to Kaiser, this inward gradient would insure that only insignificant flow of leachate into the groundwater basin would occur (see pages 39 and 40, EMCON Associates Report Dated October 8, 1971).

A Class II classification permits the disposal of Groups 2 and 3 wastes. Group 2 includes: municipal wastes (garbage, rubbish, mixed refuse, street refuse, decomposable demolition material, decomposable construction wastes, sewage treatment residue, water treatment residue, manufactured rubber products and septic tank pumpings); agricultural wastes (stalks, vines, prunings, manures and waste livestock feed); industrial wastes (lumber and wood products, grease from meat and poultry packing, tallow production and poultry hatcheries, from production of beer, wine and spirits, from fruit and vegetable packing, miscellaneous metals and metal products except magnesium and its alloys and salts, and paint sludge) [Title 23, Cal. Adm. Code, Sec. 2521].

Group 3 wastes consist entirely of nonwater-soluble, nondecomposable inert solids [Title 23, Cal. Adm. Code, Sec. 2522].

IV. Contentions of Petitioners

A. Unnecessary and Unreasonable Risk of Degradation to a Significant Groundwater Resource

Petitioners Jamieson and Alameda County Flood Control and Water Conservation District contend, in essence, that the Regional Board is allowing an unreasonable risk to the groundwater by the adoption of the requirements since they would permit the possibility of degradation or contamination of a groundwater basin used for domestic and irrigation purposes by a significant number of people, particularly when satisfactory alternatives for solid waste disposal are available.

B. The Board's Decision is Inconsistent with Title 23, California Administrative Code

Petitioners Mrs. Harding, et al., contend that the proposed disposal site will not meet the requirements of Title 23, California Administrative Code, Section 2511(d) specifying that the emplacement of Group 2 wastes should be above the highest anticipated elevation of the capillary fringe.

C. Provisions for Prevention of Toxic Waste Disposal are Inadequate

Petitioners Mrs. Harding, et al., contend that the Regional Board has adopted wholly inadequate provisions for independent inspection by public officials to ensure that the prohibition of the dumping of toxic wastes contained in its Order 73-9 is obeyed.

V. Findings

A. The Potential for Project Failure

Information provided both by Kaiser and by opponents of the project indicates a number of possible types of project failures which could adversely affect groundwater quality. These include the following: outward diffusion of leachate, loss of site integrity due to earthquake, flooding, discontinuance or failure of the maintenance program proposed by Kaiser, or abandonment or failure of drainage maintenance during the active life of the project.

The main criticisms of the proposed project involve two of the above risks: seismic effects on the clay barrier and questionable reliability of the long-term, extensive maintenance program proposed by Kaiser. Each of these risks is discussed in more detail below.

(1) Seismic Effects on the Clay Barrier

Woodward and Lundgren, Associates, consultants for Kaiser, analyzed the proposed project in light of its seismic stability. In summary, their conclusions were as follows:

- (a) under certain conditions (pit full, total fill unit weight of 65 pcf or greater) the clay barrier should perform satisfactorily;
- (b) for other conditions (pit full, total fill unit weight of 45 pcf and water table 40 feet below ground surface;

or pit partially full; or water tables lower than 40 feet below surface) potential problems are indicated by the analysis. However, Woodward and Lundgren express the opinion that "practical design and construction controls or modifications can be incorporated which should result in satisfactory performance."

Cooper and Clark, consultants for opponents of the project, prepared a critique of the Woodward and Lundgren work. Cooper/Clark's position is summarized on page 11 of their November 24, 1972, report and their overall judgment is succinctly presented on pages 26 and 27 of the transcript of proceedings before the Regional Board dated November 28, 1972.

Cooper/Clark maintain that the results of the Woodward study were based largely on assumptions which may or may not be valid. Cooper/Clark agree that controls and modifications might be incorporated in the design and construction procedure such that satisfactory performance of the site during seismic disturbances could be attained (see pages 26 and 27 of the November 28 transcript). However, at present, according to Cooper/Clark, substantial questions remain as to the stability and integrity of the proposed disposal site, both during sanitary fill placement and after completion or abandonment of the project.

(2) Reliability of the Proposed Maintenance Program

At the rate of 2,900 tons of refuse per day, the estimated useful life of the site in question for solid waste disposal is about 50 years. However, its potential for degrading or polluting of groundwaters by leachates generated by the disposed refuse is expected to exist for about 1,000 years. Prevention of degradation or pollution depends on complete separation between the contents of the landfill and the surrounding groundwater at all times. This separation is supposed to be achieved by the low permeability of clay barriers to be constructed around each refuse cell as well as by extensive operations on the site which include continuous pumping of leachate, maintenance of site drainage, and leachate treatment and disposal. Continuous groundwater and site monitoring will be required for the 1,000 year active life of the disposal site. It is questionable whether the discharger can provide such an extensive and intensive maintenance and monitoring program.

B. Foreseeable Damage from Project Failure

Although prediction of the potential for project failure, as discussed in Section A, above, is a difficult task, prediction of the damage which would result from project failure is less difficult.

At present, 50,000 people use the groundwater basin in question for domestic and agricultural purposes and it can be anticipated that this number will increase in the future.

The interim Water Quality Control Plan for San Francisco Bay Basin specifies that no controllable water quality factor shall degrade the groundwater quality. It is recognized that only very limited mixing of non-diffused discharges to an aquifer with the groundwater occurs. Due to this characteristic of groundwater systems, dilution with receiving water cannot be relied upon to produce acceptable water quality when a point source discharge of pollutants occurs.

The same properties which result in minimal dilution in groundwater systems cause a delay in detection of groundwater pollution so that a pollutional source may operate for many years before a problem is discovered in the groundwater basin. After pollution or degradation of an aquifer or groundwater basin occurs, the effects may remain for very long periods. To remove existing groundwater pollution is very difficult and may not be feasible.

Groundwater basins provide ideal storage reservoirs for water supplies and must, therefore, be considered not only for their beneficial use as a water supply source, but also as potential reservoirs to store imported water as is the case of the groundwater basin surrounding the proposed disposal site.

C. Provisions of Title 23, California Administrative Code

Title 23, California Administrative Code, Section 2511, which deals with Class II disposal sites, reads in part as follows:

"Class II disposal sites are those at which protection is provided to water quality from Group 2 and Group 3 wastes.

\* \* \*

"Class II-2 sites are those having vertical and lateral hydraulic continuity with usable groundwater but for which geological and hydraulic features such as soil type, artificial barriers, depth to groundwater, and other factors will assure protection of the quality of usable groundwater underneath or adjacent to the site.

"The following criteria must be met to qualify a site as Class II:

\* \* \*

"(c) Gases and leachate emanating from waste in the site shall not unreasonably affect groundwater during the active life of the site.

"(d) Subsurface flow into the site and the depth at which water soluble materials are placed shall be controlled during construction and operation of the site to minimize leachate production and assure that the Group 2 waste material will be above the highest anticipated elevation of the capillary fringe of the groundwater. Discharge from the site shall be subject to waste discharge requirements."

Section 2540 of Title 23 provides for a waiver of the approval and classification of disposal sites or types of sites where it can be shown that the operation in question "will not unreasonably affect water quality because of the type of waste and disposal operation."

Thus, it would have been permissible for the Regional Board to approve the Kaiser proposal in spite of the fact that Group 2 wastes are to be placed below the highest anticipated elevation of the capillary fringe of the groundwater if the proposed provisions for separation of the leachate from the groundwater and for maintenance of that separation were adequate. However, the site as proposed to be operated by Kaiser is not adequate as a Class II-2 site in light of the potential for seismic disturbances, the projected 1,000 year active life of the project and the damage which could be suffered as a result of project failure.

D. Contention that the Provisions for Prevention of Toxic Waste Disposal are Inadequate

The specifications and provisions of the waste discharge requirements issued by the Regional Board forbid disposal of toxic (Group 1) wastes at the site.

Absolute exclusion of all toxic material is practically impossible since small quantities are likely to be mixed in with Group 2 wastes.

VI. Conclusions

A. Taking into account the potential for failure of the clay barrier during seismic disturbances under the present project design (Finding A(1), above), the questionable reliability of the proposed maintenance and monitoring program over the 1,000 year active life of the project (Finding A(2), above), the

possible damage to an important groundwater resource from project failure (Finding B, above), and the constituents of leachate from Group 2 disposal operations, we conclude that the Regional Board's action in issuing waste discharge requirements which permit the disposal of Group 2 wastes below the highest anticipated elevation of the capillary fringe of the groundwater was inappropriate and improper. Although the Regional Board is permitted to waive the provisions of Title 23, Section 2511(d) under certain circumstances, the instant case is not appropriate for such a waiver.

B. Provisions taken by the Regional Board for the exclusion of toxic wastes from the Kaiser site are adequate.

IT IS HEREBY ORDERED as follows:

1. The discharge of Group 2 wastes below the highest anticipated elevation of the capillary fringe of the groundwater is prohibited.
2. Those portions of Order No. 73-9 of the Regional Board prescribing requirements for the discharge referred to in the preceding paragraph are set aside.
3. The State Board will, by further order after notice to all interested parties, amend Order No. 73-9 as necessary to

prescribe such requirements, as may be appropriate and proper for the discharge of Group 2 wastes above the highest anticipated elevation of the capillary fringe of the groundwater.

Dated: October 4, 1973

/s/ W. W. Adams  
W. W. Adams, Chairman

/s/ Ronald B. Robie  
Ronald B. Robie, Vice Chairman

/s/ Roy E. Dodson  
Roy E. Dodson, Member

/s/ Mrs. Carl H. Auer  
Mrs. Carl H. (Jean) Auer, Member

/s/ W. Don Maughan  
W. Don Maughan, Member

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IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA  
IN AND FOR THE COUNTY OF ALAMEDA

KAISER SAND & GRAVEL DIVISION OF KAISER INDUSTRIES CORPORATION,	)
Petitioner,	)
vs.	)
STATE WATER RESOURCES CONTROL BOARD,	)
Respondent.	)

No. 442606  
PEREMPTORY WRIT OF MANDATE

The People of the State of California  
To STATE WATER RESOURCES CONTROL BOARD, Respondent:

Judgment having been entered in this action, ordering  
that a peremptory writ of mandate be issued from this Court,

RESPONDENT STATE WATER RESOURCES CONTROL BOARD IS  
HEREBY COMMANDED immediately on receipt of this writ to:

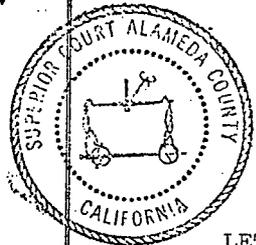
- a. Set aside its Order No. WQ 73-23;
- b. Either (1) adopt the Order of the Regional Board No. 73-9 or (2) reopen the proceeding to permit all interested parties to submit further evidence and argument;
- c. In the event respondent determines to reopen the proceeding rather than adopt the Regional Board's Order, respondent may at its option elect to hear such evidence and argument or remand the proceeding to its Regional Agency for such purpose;

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d. Thereafter proceed as prescribed by law, reconsidering its action in the light of this Court's findings of fact and conclusions of law, and to take any further action specially enjoined upon it by law.

SEP 10 1974



Jack G. Blus \_\_\_\_\_, Clerk  
By *[Signature]* \_\_\_\_\_, Deputy Clerk

LET THE FOREGOING WRIT ISSUE.

Dated:

SEP 6 1974

*[Signature]*  
Judge of the Superior Court

State Water Resources Control Board  
October 17, 1974 Meeting

On September 6, 1974, a judge of the Superior Court issued a Peremptory Writ of Mandate in the case of Kaiser Sand and Gravel v. State Water Resources Control Board. The writ directed the Board to set aside its Order No. WQ 73-23 and to either (1) adopt the order of the Regional Board or (2) reopen the proceeding and allow all interested parties to submit further evidence and argument. The staff and consultants are working towards a reopening of the proceeding. However, to comply with the order of the Court we must set aside Order No. WQ 73-23.

Therefore, I hereby move that State Board Order No. WQ 73-23 be repealed.

Motioned: Mrs. Carl H. (Jean) Auer

Consented: Ronald B. Robie, W. Don Maughan, Roy E. Dodson

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Absent: W. W. Adams, Chairman

STATE OF CALIFORNIA  
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*Repealed 9-10-74  
repeal adopted 10-17-74*

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I. Background

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via the Alameda County Flood Control and Water Conservation District, Zone 7 system. It presently supplies about 50,000 people in the City of Pleasanton and the Dublin Area of the Valley Community Services District.

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"Class II-2 sites are those having vertical and lateral hydraulic continuity with usable groundwater but for which geological and hydraulic features such as soil type, artificial barriers, depth to groundwater, and other factors will assure protection of the quality of usable groundwater underneath or adjacent to the site.

"The following criteria must be met to qualify a site as Class II:

\* \* \*

"(c) Gases and leachate emanating from waste in the site shall not unreasonably affect groundwater during the active life of the site.

"(d) Subsurface flow into the site and the depth at which water soluble materials are placed shall be controlled during construction and operation of the site to minimize leachate production and assure that the Group 2 waste material will be above the highest anticipated elevation of the capillary fringe of the groundwater. Discharge from the site shall be subject to waste discharge requirements."

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Thus, it would have been permissible for the Regional Board to approve the Kaiser proposal in spite of the fact that Group 2 wastes are to be placed below the highest anticipated elevation of the capillary fringe of the groundwater if the proposed provisions for separation of the leachate from the groundwater and for maintenance of that separation were adequate. However, the site as proposed to be operated by Kaiser is not adequate as a Class II-2 site in light of the potential for seismic disturbances, the projected 1,000 year active life of the project and the damage which could be suffered as a result of project failure.

D. Contention that the Provisions for Prevention of Toxic Waste Disposal are Inadequate

The specifications and provisions of the waste discharge requirements issued by the Regional Board forbid disposal of toxic (Group 1) wastes at the site.

Absolute exclusion of all toxic material is practically impossible since small quantities are likely to be mixed in with Group 2 wastes.

VI. Conclusions

A. Taking into account the potential for failure of the clay barrier during seismic disturbances under the present project design (Finding A(1), above), the questionable reliability of the proposed maintenance and monitoring program over the 1,000 year active life of the project (Finding A(2), above), the

possible damage to an important groundwater resource from project failure (Finding B, above), and the constituents of leachate from Group 2 disposal operations, we conclude that the Regional Board's action in issuing waste discharge requirements which permit the disposal of Group 2 wastes below the highest anticipated elevation of the capillary fringe of the groundwater was inappropriate and improper. Although the Regional Board is permitted to waive the provisions of Title 23, Section 2511(d) under certain circumstances, the instant case is not appropriate for such a waiver.

B. Provisions taken by the Regional Board for the exclusion of toxic wastes from the Kaiser site are adequate.

IT IS HEREBY ORDERED as follows:

1. The discharge of Group 2 wastes below the highest anticipated elevation of the capillary fringe of the groundwater is prohibited.
2. Those portions of Order No. 73-9 of the Regional Board prescribing requirements for the discharge referred to in the preceding paragraph are set aside.
3. The State Board will, by further order after notice to all interested parties, amend Order No. 73-9 as necessary to

prescribe such requirements as may be appropriate and proper for the discharge of Group 2 wastes above the highest anticipated elevation of the capillary fringe of the groundwater.

Dated: October 4, 1973

*W W Adams*

W. W. Adams, Chairman

*Ronald B. Robie*

Ronald B. Robie, Vice Chairman

*Roy E. Dodson*

Roy E. Dodson, Member

*Mrs. Carl H. Auer*

Mrs. Carl H. (Jean) Auer, Member

*W. Don Maughan*

W. Don Maughan, Member